

D. P. SHARP.
Horse Hay-Rakes.

No. 152,920.

Patented July 14, 1874.

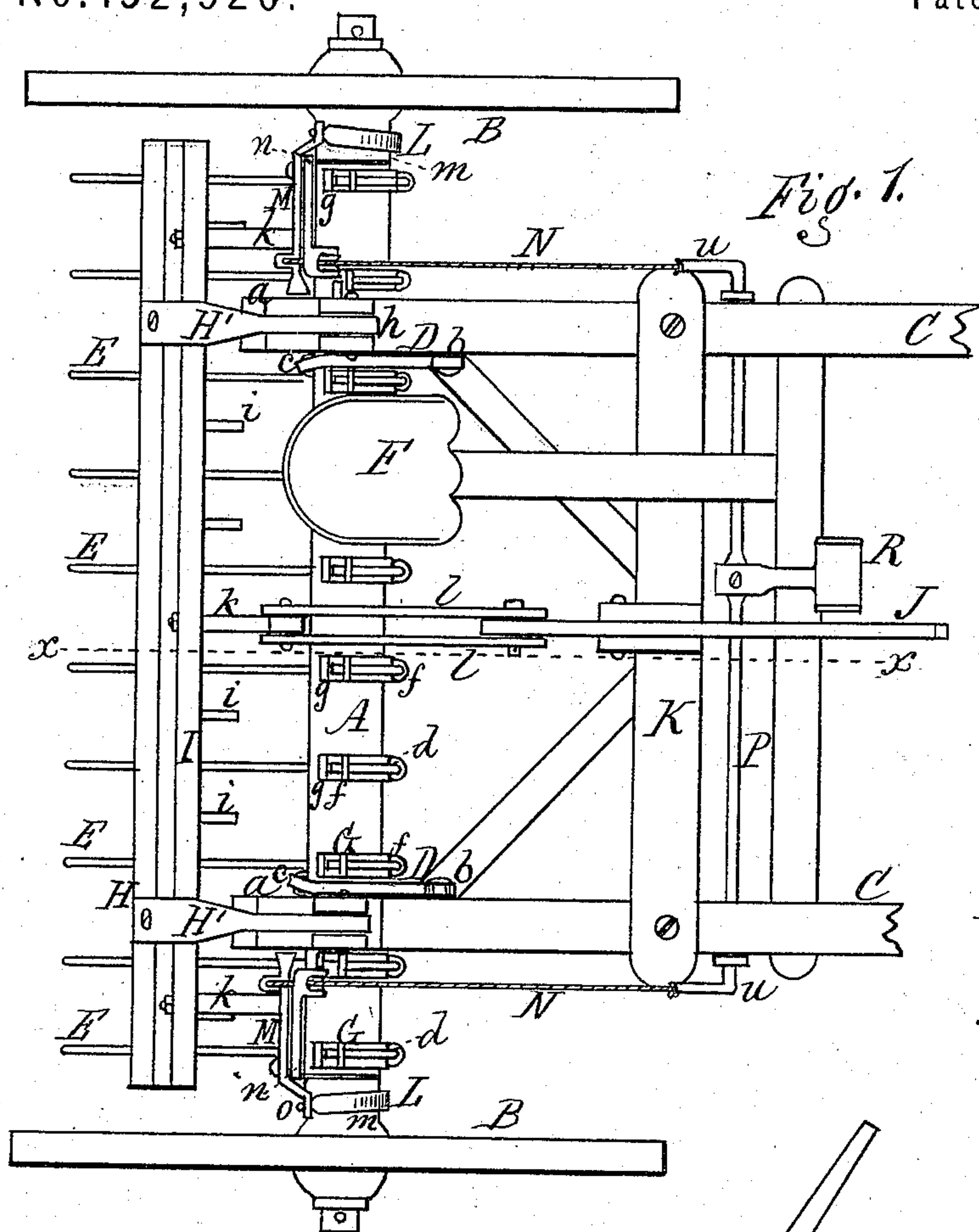


Fig. 1.

Fig. 3.

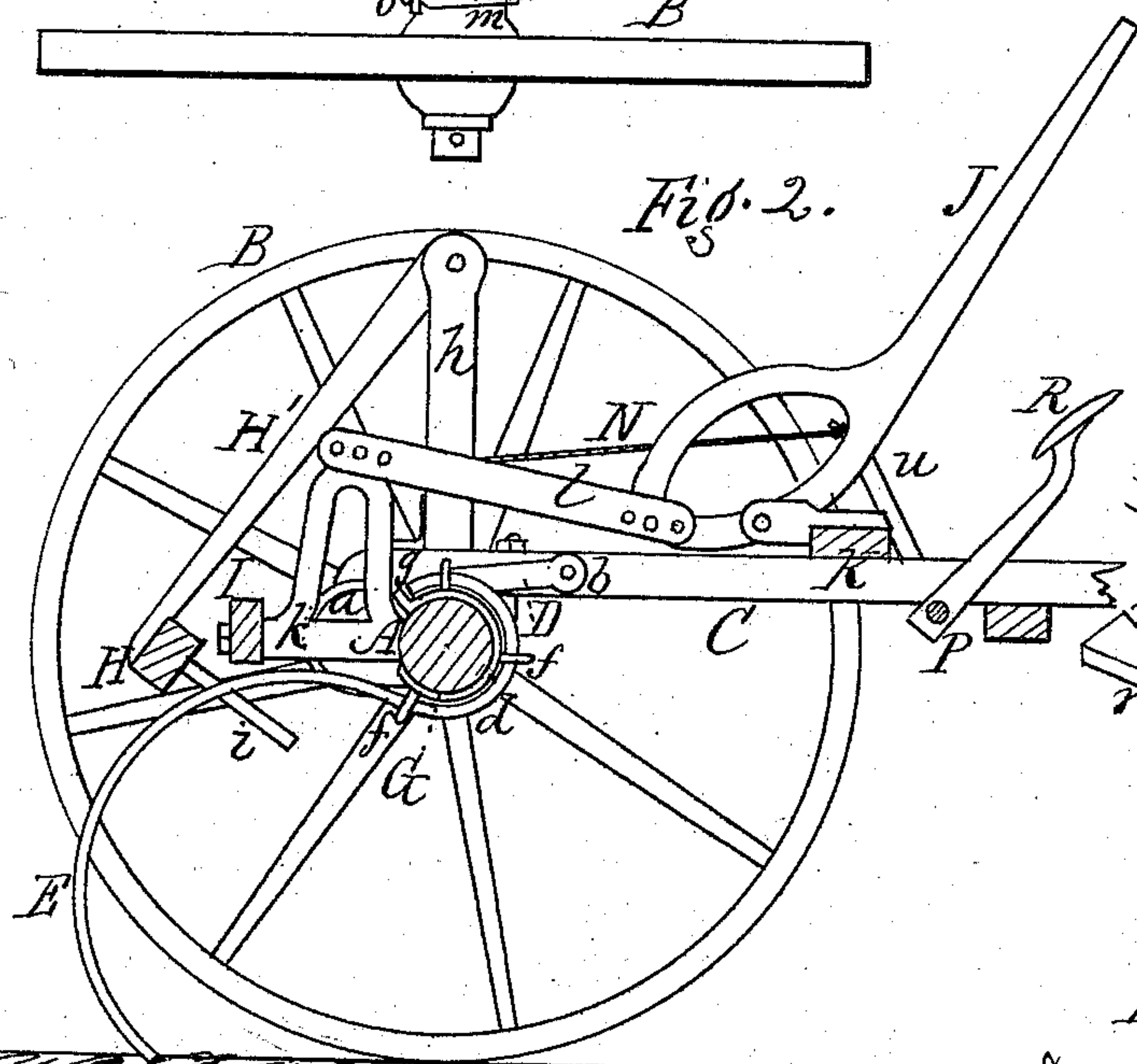
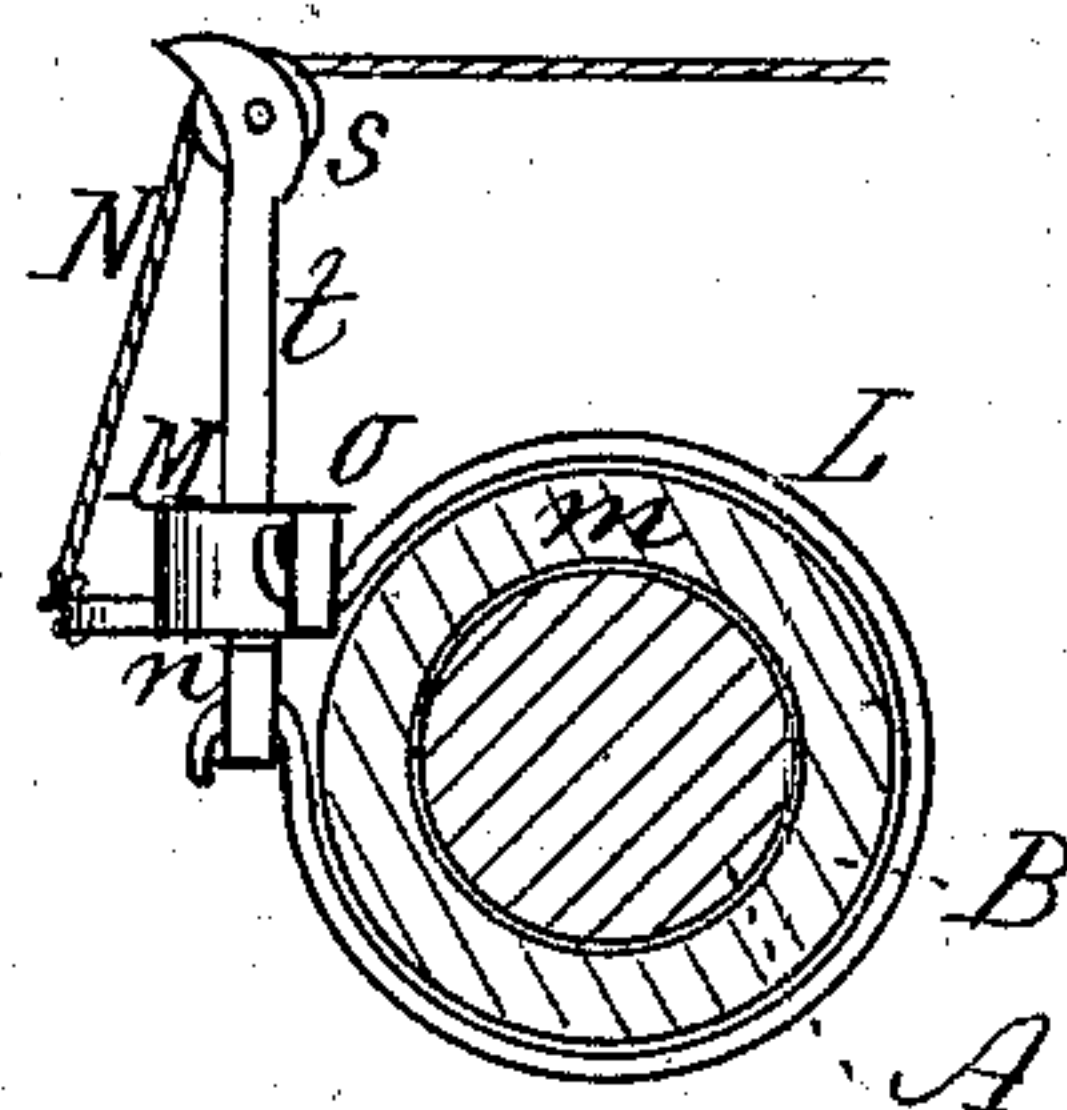
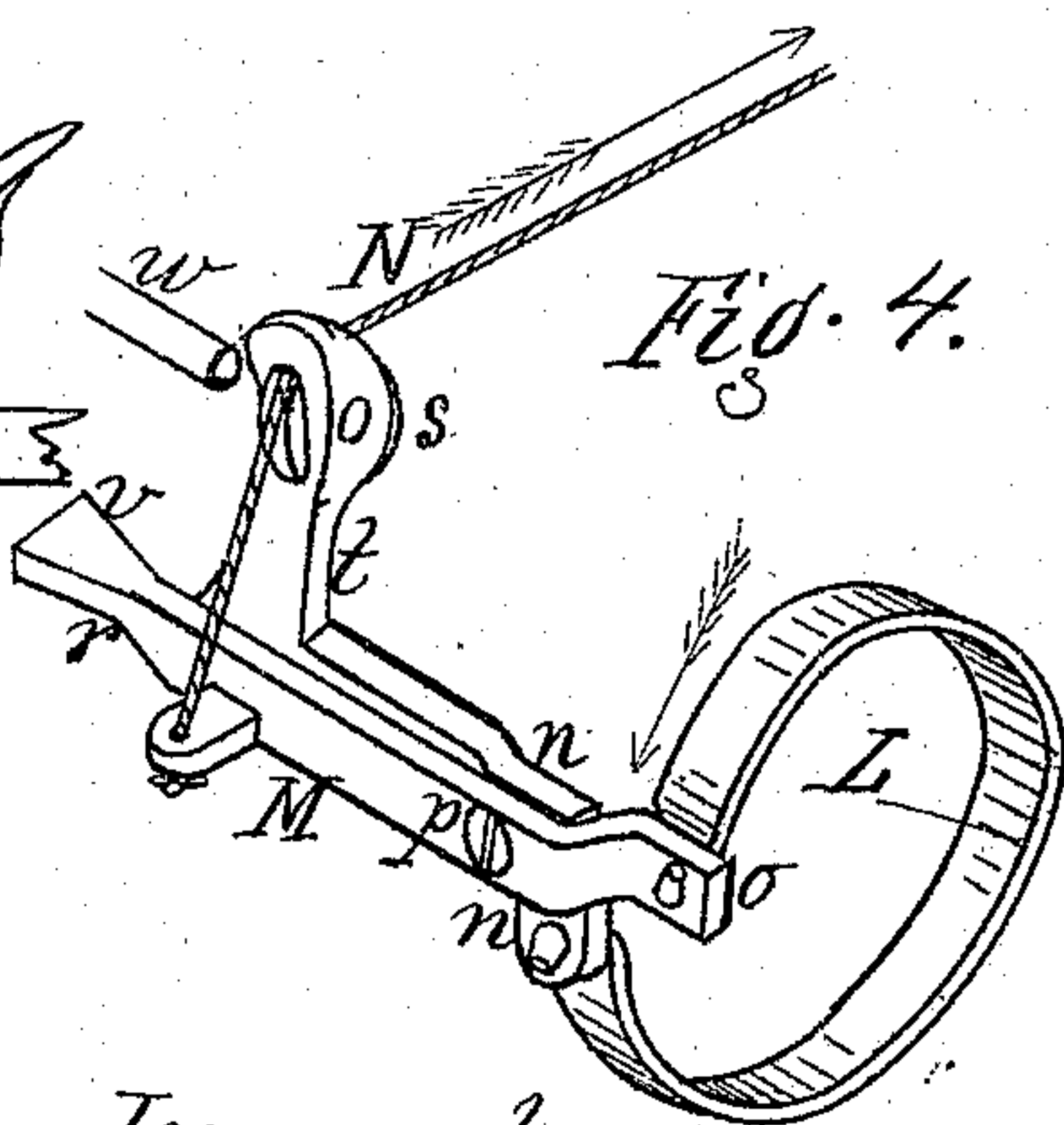


Fig. 2.

Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

DENNIS P. SHARP, OF ITHACA, NEW YORK, ASSIGNOR TO THE ITHACA AGRICULTURAL WORKS, OF SAME PLACE.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **152,920**, dated July 14, 1874; application filed May 6, 1874.

To all whom it may concern:

Be it known that I, DENNIS P. SHARP, of Ithaca, in the county of Tompkins and State of New York, have invented a certain new and useful Improvement in Horse-Rakes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

This improvement relates to that class of mounted horse-rakes in which the load is dumped automatically by the draft or forward motion of the wheels, when the proper engagement is made. The invention consists in combining, with the hubs of the wheels, flexible straps, which form brakes, said straps encircling the hubs, being attached at one end to fixed bearings, and at the other to pivoted levers, which, in turn, are connected, by cords or equivalent devices, with the double cranks of a foot-lever, as hereinafter described.

In the drawings, Figure 1 is a plan. Fig. 2 is a vertical section in line *x x*. Fig. 3 is an enlarged view, showing a cross-section of one of the hubs, and my improvement applied thereto. Fig. 4 is a perspective view of the brake attachment.

A is the axle, and B B the driving-wheels. C C are the thills. At the rear the thills have loops or bands *a a*, which embrace or encircle the axle, and have a loose movement thereon, sufficient to raise the teeth by the rolling action of the axle. D D are hinge-connections, pivoted at *b* to the thills, and connected by a hook and eye, *c*, to the axle. When the teeth are to be elevated for dumping the load, these connections allow the turning of the axle to be performed by the draft or the forward motion of the thills, the loops *a a* of which slide upon or over the axle to the extent of the motion, as before described. E E are the teeth, which are made of spring-wire. They connect with the axle by coils *d d*, which pass around circular plates or bands G G, secured to the axle, as shown. These bands have loops *f f*, through which the coils pass loosely, and at the upper ends they also have stops *g*, against which the ends of the coils rest. By this means the teeth have a free motion backward if they strike obstructions, while their

motion forward is gaged by the stops. H is the clearing-bar, connected by the arms H' H' with standards *h h*, attached to the thills. They are pivoted at the top in such a manner that the clearing-bar can ride up with the teeth. The bar is provided with clearing-teeth *i i*, which stand at right angles, or nearly so, with the rake-teeth, and serve to clear the latter of the hay in dumping. I is a cross-bar in the rear, connected with the axle by arms *k k k*. The center arm has a standard, and is connected by links *l l* with the hand-lever J, which, in turn, is pivoted to a bearing on the cross-bar K of the thills. By this means the driver, sitting on the seat F, can operate the teeth at pleasure.

Thus far the construction is substantially the same as in my patents of December 12, 1865, July 17, 1867, and March 5, 1872.

My present invention consists of the following arrangement: L L are flexible metallic straps, which encircle the inner extensions *m m* of the hubs. One end of each strap is attached to a fixed bearing, *n*, secured to the axle; the other end is attached to the short end *o* of the lever M, which is pivoted at *p* to the bearing *n*. To the long end *r* of the lever is connected a cord or equivalent, N, which passes over a pulley, *s*, in a fixed standard, *t*, of the axle, and thence extends forward and is attached to a crank, *u*, of the shaft P. The shaft is double-cranked, as shown, as the brake connections are used on both sides. To the shaft is attached, in a convenient position, a foot-lever or treadle, R.

The operation is as follows: When it is desired to dump the load the driver presses his foot on the treadle R. This, through the medium of the cranks *u u*, draws upon the cords N N, and consequently acts upon the levers M M. The depression of the short ends of the levers draws the flexible straps L L closely around the hubs of the wheels, thereby making them serve as brakes. The axle, being thus secured or made fast with the wheels, turns with them, thereby raising the teeth and dumping the load. When the teeth have raised to a suitable extent, the end *v* of the levers strikes a stop *w*, projecting from the thills, which throws

the levers back to their normal position, thereby relaxing the pressure of the straps, releasing the axle, and allowing the teeth to fall back to place again. The brakes thus applied to the hubs of the wheels are more effective than when applied upon the outer rim or tire, since the moment they are applied the action is instantaneous, and the teeth begin to rise to dump the load. By this means the windrows can be gaged with great exactness and precision. When applied upon the rim there is much loss of motion, and the windrows cannot be laid straight. In such case, also, much dirt and extraneous matter rises on the periphery of the wheel, which interferes with the brakes. The arrangement of the levers, the cords, the cranks, and the treadle is such as to enable the driver to operate with great exactness, and it enables the power to be applied on both sides simultaneously.

Having thus described my invention, I do not claim applying the draft or the forward motion of the wheels to raise the teeth. Neither do I claim, broadly, the use of brakes for locking the wheels to the axle for raising the teeth; but

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the flexible straps L L, levers M M, bearings *n n*, cords N N, and shaft P with cranks *u u* and treadle R, for connecting the axle with the hubs of the wheels, substantially as specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

DENNIS P. SHARP.

Witnesses:

A. D. LUCE,

A. W. FORCE.